REPORT

FROM

THE SECRETARY OF WAR,

COMMUNICATING,

In compliance with a resolution of the Senate, copies of the report on the impediments to navigation in Lake St. Clair; and of the report and survey of the Straits of Detroit.

JULY 15, 1842.
Read, and referred to the Committee on Printing.

JULY 25, 1842.
Reported in favor of printing report and not the maps.
Ordered to be postponed until to-morrow.

AUGUST 5, 1842.
Resumed: report as to maps disagreed to, and the report and maps ordered to be printed.

WAR DEPARTMENT, *July* 13, 1842.

SIR: Under the resolution of the Senate of the 5th instant, requiring "the Secretary of War to submit to the Senate as much of the report and survey of the straits of Detroit as will exhibit the impediments to the entrace of said straits from Lake Erie, and also a copy of the report in reference to impediments to navigation in Lake St. Clair," I have the honor to transmit, herewith, a report of the colonel of the corps of Topographical Engineers, with estimates and diagrams, which it is believed contains all the information required.

With great respect, your obedient servant,

J. C. SPENCER.

Hon. WILLIE P. MANGUM,
President of the Senate.

BUREAU OF TOPOGRAPHICAL ENGINEERS,
Washington, July, 11, 1842.

SIR: In conformity with a resolution of the Senate of the 5th instant, I have the honor to submit copies of the reports in reference to the impediments to navigation in Lake St. Clair, and copies of the report and of the map in reference to the impediment to the entrance of Detroit river from Lake Erie.

For the removal of the impediments in Lake St. Clair, Captain Williams has stated it as his opinion that the cost will not be less than 20,000 dollars. There has been no survey in detail of these impediments, but the experience of Captain Williams, who has examined the ground, is deserving of the greatest confidence, and the importance and the necessity of the work are so well exposed by him, as to require no additional remarks from me.

Thomas Allen Hall

The only good channel from Lake Erie to Detroit is near the Canada shore. Vessels can not now pass up the river from the lake without being completely controlled by the fort at Malden. The survey which was made, a copy of which accompanies this report, was to ascertain if a channel did not exist or could not be made within the American waters and without reach of the guns at Malden. The results of the survey exhibit an imperfect channel, which with some expense may be made practicable for steamboats at all times. The officer who made the survey, states, that it will require the removal, by dredging, of about 46,600 cubic yards of earth, principally sand, gravel, and stone. We will suppose that the mass to be removed will equal 50,000 cubic yards. To excavate and remove such a mass of material of the kind described from under water will cost about 50 cents per cubic yard. It may be done for less, but when one considers the difficulties, interruptions, and impediments of various kinds, to which work like this is usually exposed, it would not, I think, be safe to make an estimate for less.

50,000 cubic yards at 50 cents per yard, is - - $25,000

To execute this work will require a steam dredge boat. The Government owns one on Lake Erie, but it is now dismantled and much out of order. To repair it and its machinery, will cost about $10,000.

Summary.

For removing the bar and impediments to navigation in Lake St. Clair - - - - - -	$20,000
For removing the bar and impediments to the entrance of Detroit river from Lake Erie - - - -	25,000
For the repair and refitting of the steam dredge boat on Lake Erie - - - - - -	10,000
Total - - - - -	55,000

But on considering how much of the season favorable to such operations in that quarter has already passed, and the time which will be required to repair and refit the dredge boat, it is respectfully submitted that no more than $25,000 be appropriated for the present year.

Very respectfully, sir, your obedient servant,

J. J. ABERT,
Col. Corps Topographical Engineers.

Hon. J. C. SPENCER,
Secretary of War.

Extract from the report of Capt. W. G. Williams, Corps of Topographical Engineers, in relation to the survey of the northern and northwestern lakes of the United States, dated Buffalo, December, 31, 1841.

But there is one point to which I beg leave to refer as extremely important to the immediate interests of the commerce of the lakes, namely: the obstructions to the navigation in Lake St. Clair. The following minutes of reconnaissance I had the honor to forward for the information of the bureau during the last summer, and which I beg leave again to introduce to your notice.

A shoal exists at the mouth of St. Clair river at its debouche into the

Lake St. Clair. The shoal consists of two distinct bars; the upper one of which is very narrow, over which the most water that can be carried is nine feet, the lower bar is wider, say nearly the fourth of a mile, of a depth of nine feet nearly; between the two is a depth of two fathoms. Below the lower and principal bar the lake is shoal, and in the channel very uniform in its depth, varying between ten and a half and fourteen feet, the greatest portion being about twelve feet. The present channel is circuitous, but its conformation is such that the distance may be greatly shortened by dredging. The course over the bar in ascending is at first nearly north, it then changes to about a northeast by east direction, it then becomes tortuous until it enters the river, but no difficulty or impediment to navigation exists beyond. Indeed, this shoal is the only obstruction to navigation from navigable waters above the falls of Niagara to the southern end of Lake Michigan, a distance of about one thousand miles. This is without exception one of the most remarkable features in topography that has ever come under my observation, not, indeed, as varying from a general law, but as one of that law's most striking illustrations. The delta of the Mississippi is formed by the alluvion having space without limit on which to deposite itself as the outspreading waters lose their velocity. But the Lake St. Clair is not more than seven miles wide in this part, and yet the whole mass of waters of the lakes are discharged through it at this point, over, one may almost say, a bed of subaqueous vegetation; the sides of the steamboat in passing through the channel are swept on either side by rushes; and the "Commercial Association" is obliged to resort habitually in the spring to the location of buoys for the marking out of the channel. The importance of this channel of communication is very great; a whole fleet of vessels is detained periodically in the spring until it is buoyed out to enable them to follow the winding channel, through which they are obliged to pass. The operation of dredging would be attended, I think, with success and permanent advantage. The marks of keels upon the bottom where vessels have been dragged over the bar are visible from year to year, showing a permanence of character in the bottom, justifying every hope that the work once effected would be lasting. The route from the Mississippi and New Orleans to the northeastern States has taken this direction within a year or two, and will increase to an immense extent. The advantages, therefore, of a work facilitating the communication would be felt by a large portion of the country.

Since the reconnaissance above referred to, the waters of the lakes have fallen considerably, and very unusual delays have been occasioned thereby to steamboats and sail-vessels navigating the lakes. Vessels are compelled frequently to have their cargoes taken out by lighters until they have passed the shoal, and groups of them are frequently collected at this point and retarded in their voyage for several days, by the interposition of a single vessel that may have grounded in the channel of the lake. That this obstacle should be removed does not admit of a doubt, and I do not hesitate to recommend to the Department that the survey should be immediately made as a portion of the "survey of the northwestern lakes." Upon this examination an estimate may be made for the necessary amount to remove the obstruction, which we believe might be effected the ensuing summer.

Very respectfully, &c.

W. G. WILLIAMS,
Captain Topographical Engineers.

Colonel J. J. ABERT,
Chief Topographical Engineers, Washington.

BUFFALO, N. Y., *May* 2, 1842.

SIR: I beg leave to call your attention to that portion of my report on the survey of the northwestern lakes relating to the obstruction at the mouth of St. Clair river. Owing to the decline of water in the lake, the impediment to navigation has become more marked in its character, and is a source of great anxiety to the commercial community of the lake coast, who are universally interested in the subject. Its importance is of a general character, and involves a vast amount of capital; as it forms an hiatus in the channel of communication between the great Mississippi valley, by the entrepot of Chicago, and the great emporia of our eastern States, by that of Buffalo, Cleveland, &c., &c., and so national may it be regarded by the extent of its influence, that the mere cost of removal of the obstacle should scarcely be considered. This view of the case renders it unnecessary that an estimate should be made in detail, which would require preparatory surveys. The work, according to my impression, would not cost above $20,000 to do it effectually. Should an appropriation be made, the surveys could immediately be commenced, *and the necessary preliminary arrangements in regard to machinery* effected, so that no loss of time should take place to its completion. Were this a question of ordinary importance, I should not recommend that any measures for absolute operations should precede a survey and detailed estimate; but the object would, we believe, be equally expedient, if the cost were ten-fold the amount to which it can possibly reach.

I should, therefore, submit to the bureau that an appropriation of $20,000 be asked for this purpose, viz: For removal of obstacles at the mouth of St. Clair river, as explained in report of surveys of northwestern lakes, *twenty thousand dollars.*

I am, sir, very respectfully, your obedient servant,

W. G. WILLIAMS,
Captain Topographical Engineers.

Col. J. J. ABERT,
Chief Topographical Engineers, Washington, D. C.

[Extract.]

DETROIT, *May* 25, 1842.

SIR: I have the honor to acknowledge your letter of the 10th instant, calling on me for information in relation to the American channel at the junction of the Detroit with Lake Erie.

It appears from the chart which I have recently completed, that there is ample depth of water for any of the vessels navigating the lakes to enter and pass on the west side of Celeron island and Grosse isle, in a channel entirely within our own limits, being generally two miles and more from the national boundary line. The narrowest part of the channel occurs off Celeron island, where it has a width of only two hundred feet between the curves of twelve feet in depth, for three eighths of a mile.

This channel, when properly marked out with stakes, is quite practicable, *by day light*, for steamboats and sailing vessels with a favorable wind; but, as it is narrow and not perfectly straight, it would not be a safe one to attempt at night.

There is another pass, to the east of the one above described, which, although it does not afford so great a depth of water throughout, is greatly to

be preferred, from the fact that its general direction passes through the light-house at Gibraltar, which renders the channel an easy one to find and to follow by night or day, without the necessity of marking out with stakes.

A channel which may be depended upon at any stage of water which will probably occur, should have a depth corresponding with twelve feet on the chart, a copy of which is herewith submitted.

To make a channal of that depth, with a width of four hundred feet, at the position indicated upon the chart (viz: in a direction south 22° east from the light-house), will require an excavation, by dredging, of forty-six thousand six hundred and sixty-six cubic yards, where the bottom is of sand, gravel, and loose stones, with clay underneath.

Very respectfully, &c.

J. N. MACOMB,
First Lieutenant Topographical Engineers.

Col. J. J. ABERT,
Corps Topographical Engineers, Washington.

MAP
OF THE
STRAITS OF DETROIT

SURVEYED, PROJECTED AND DRAWN BY

LIEUTENANTS J.N. MACOMB AND W.H. WARNER
U.S. CORPS OF TOPL. ENGS.

1840 '41 '42.

SHEET No. 1.

W.J. Stone Sc. Wash.

SCALE OF 3 INCHES TO 1 MILE OR $\frac{1}{21120}$

8 6 4 2 0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000 Feet
TRUE MERIDIAN
MAGNETIC VARIATION 1° 30' EAST JUNE 30TH 1840.
MAGNETIC MERIDIAN
Lime Kilns and Lime Stone Quarries
elevation 11 ft
Maj John Biddle
Overflowed in 1838, 39, and 40.
Monguago Creek
DETROIT AND OHIO ROAD
TRUAGO
Plain 3 feet elevation
Hutchinson
Keith
Rusker
GROSSE ISLE
The Island is here traversed by a marsh, commonly known as "The THOROUGHFARE"
Abbott
Lewis
Powers
Ballard
Clay bluff about 25 feet high
Shoal
Judy
Mammy
Fish House
derrick
Hard Gravelly Bottom
Current 1 Mile and ¾ an hour June 8th and 9th 1841.
FIGHTING ISLAND
TURKEY ISLE
TRUE MERIDIAN
MAGNETIC VARIATION 1° 45' EAST MAY 27TH 1841
MAGNETIC MERIDIAN
Old Stone Windmill
Amhersburgh, Sandwich, Windsor and Chatham Road
Riviere aux Canards
CANADA
J. Dougall
Note. There is a very dangerous Rock in front of J. Dougalls brick dwelling at 375 feet from the shore. Only 6 feet of water on top and 24 feet deep all around it.
STONY ISLAND
Fish house
Rock
Lime Kilns
Lime stone Quarry about 2 miles
Clay bluff 15 to 20 in height
Descent of the stream, one tenth of a foot in a mile, as given by a line of levels from Lake St. Clair to Lake Erie. Greatest current 2¼ miles an hour, found off Springwells.
Flag Staff of Fort Malden
AMHERSTBURG
Steeple of old brick Church
BOIS BLANC
LIGHT HOUSE
Reynolds
Elliott
Stone Windmill
ELBA I.
SUGAR I.
HICKORY ISLAND
CELERON ISLAND
Oak tree
GIBRALTAR
LIGHT HOUSE
Soft Bottom
Hard Clay
Gravel
Coarse Gravel and Sand
Sandy with Coarse Gravel and Sand
Rushes
Stony
Mud
Clay
Hard Bottom
Hard Clay and Sand
Black Sand and Clay
Clay and Sand
Hard Sand
Sandy
Fine Sand
Soft Mud
LAKE ERIE

TABLE

showing the various stages of water which have occurred in the DETROIT at different periods, referred to the stage of July 1841, that being the stage to which the soundings are referred. When higher than in July 1841, marked +; When lower than in July 1841, marked –.

A.D.	Month.	Height of water surface		Remarks.
		Feet	Tenths	
1830	June	+ 0	5	In August 1838 the water was higher than it had been for a century, as is inferred from the size of trees killed on the banks by having their roots overflowed.
1838	July	+ 3	5	
1839	July	+ 2	5	
1840	July	+ 1	0	
1840	October 3d.	– 2	3	Very low, for one day, caused by a gale from W.S.W.
1841	July	0	0	
1841	September	– 0	5	
1841	October	– 1	8	Low for four days, strong West wind.
1842	January	– 0	7	

Note. This Table is in part obtained from the Geological Department of Michigan and in part from my own observation.

J.M. Macomb
1st. Lt. Top. Engrs.

Numbers, letters &c marked thus + designate points of triangulation determined with the Theodolite.
Points marked thus 2.3.4. A.B were determined with the Sextant.
The soundings are expressed in feet and are referred to the water surface of the DETROIT as it stood during the month of July 1841.